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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Stachurski et al  
Appl. No.: 09/522,421  
Filed: March 9, 2000  
Title: Encoding in Speech Compression

Art Unit: 2654  
Examiner: Chawan  
Docket: TI-29010

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## APPELLANTS' BRIEF (in triplicate)

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O.Box 1450  
Alexandria, VA 22313-1450

**MAILING CERTIFICATE**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 today.

Gracia Sansom

Date

Dear Sir:

The attached sheets contain the Rule 192(c) items of appellants' brief. The Commissioner is hereby authorized to charge the fee for filing a brief in support of the appeal plus any other necessary fees to the deposit account of Texas Instruments Incorporated, account No. 20-0668; two additional copies of this first sheet of appellants' brief are enclosed.

Respectfully submitted,

Carlton H. Hoel  
Reg. No. 29,934  
Texas Instruments Incorporated  
PO Box 655474, M/S 3999  
Dallas, Texas 75265  
972.917.4365

Rule 192(c)(1) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 192(c)(2) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 192(c)(3) Status of claims

Claims 1-4 are pending in the application with all claims finally rejected. This appeal involves the finally rejected claims.

Rule 192(c)(4) Status of amendments

There is no amendment after final rejection.

Rule 192(c)(5) Summary of the invention

The invention provides an encoding method, such as useful in digital speech encoding, which has both strong and weak predictors and the method replaces a strong predictor with a weak predictor when the strong predictor had followed a weak predictor. Application Fig.1b is a flow diagram and pages 9-10 describe the weak and strong predictors in the context of encoding a vector of Fourier coefficients for a frame of speech. Encoding an item using a predictor essentially consists of first predicting the item from a previously-encoded item and then encoding only the difference between the item and the prediction of the item. For the encoding method at issue there are two predictors available for an item to be encoded: a strong predictor and a weak predictor; for example (application page 10, last paragraph), the strong predictor could be 0.8 times the previously-encoded item and the weak predictor could be 0.2 times the previously-encoded item. The selection of which predictor to use could be based on which yields the smaller encoding error. And the inventive method adds an adjustment: when a current item being encoded has a better prediction using its strong predictor but this current item follows a previous item which had a better prediction using the previous

item's weak predictor, then the current item is encoded with its weak predictor replacing its strong predictor. This has advantages as described on application page 10.

#### Rule 192(c)(6) Issues

The issues presented on appeal are:

- (1) whether claims 1-4 are anticipated by the McCree reference.
- (2) whether claims 1-4 are indefinite.

#### Rule 192(c)(7) Grouping of the claims

The claims are argued separately for the indefiniteness rejection.

#### Rule 192(c)(8) Argument

(1) Claims 1-4 were rejected as anticipated by McCree. The Examiner cited the first preferred embodiment of McCree (column 3, line 21 through column 6, line 48) as disclosing the claims.

Appellants reply that McCree has no indication of strong and weak predictors; rather, the only "prediction" in McCree seems to be the pitch prediction (column 5, line 29) as used for an adaptive codebook of a CELP encoder and the general linear prediction coding of speech (LPC). In short, McCree does not suggest the strong and weak predictors required by the claims, and the claims are patentable over McCree.

(2) Claims 1-4 were rejected as indefinite.

Appellants reply that one of ordinary skill in the encoding art would understand the terminology and method of the claims. Further, dependent claim 2 requires explicit types of predictors, and dependent claim 3 defines the predictors.

Rule 192(c)(9) Appendix

1. An encoding method using strong and weak predictors, comprising the step of:
  - (a) replace a strong predictor following a weak predictor with a weak predictor.
2. The method of claim 1, wherein:
  - (a) said strong predictor and said weak predictor predict the Fourier coefficients for the pitch harmonics.
3. The method of claim 2, wherein:
  - (a) said strong predictor equals a multiple of the Fourier coefficients of a prior frame with the multiple in the range of 0.7 to 1.0; and
  - (b) said weak predictor equals a second multiple of the Fourier coefficients of said prior frame with said second multiple in the range of 0.0 to 0.3.
4. The method of claim 1, wherein:
  - (a) said step (a) of claim 1 replaces a second successive strong predictor with a corresponding second weak predictor.